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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,943	06/23/2003	Lieuwe Jan Spreuwers	NL020579	9507

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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BRIARCLIFF MANOR, NY 10510

EXAMINER
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AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/02/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/601,943	<b>Applicant(s)</b> SPREEUWERS ET AL.	
	<b>Examiner</b> Seyed Azarian	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-8,10-12,14 and 15 is/are rejected.
- 7) ☒ Claim(s) 5,9 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **RESPONSE TO AMENDMENT**

1. Applicants' amendment filed, 1/24//2007, see page 6 through page 14, of remark, with respect to amended claims 6, 7 and 14-15, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made. The objection of abstract after is amended to address the informalities noted in the previous office action, is withdrawn.

### **Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 14 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 142 define " software program for a computer of an apparatus. However, the claim does not define a "computer-readable medium", or computer readable medium encoded with a computer program, such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer.

### **Double Patenting**

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3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.3218 may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 10 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8, of U.S. Patent No. 7,047,061. Each of the limitation set forth in the claims of the instant application is defined in the claims of the patent.

As an example consider claim 1, of current application, compared to claims 5 and 8 of U.S. Patent No. 6,829,372.

### **Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-4 and 10-12, are rejected under 35 U.S.C. 102(b) as being anticipated by Jerome Declerck et al (Automatic Registration and Alignment on a Template Of Cardiac Stress and Rest Reoriented SPECT Images).

Regarding claim 1, Declerck discloses method for analyzing perfusion images (see abstract myocardial perfusion studies);

in particular MR perfusion images, of a human or animal organ including the steps of (a) defining at least one contour of the organ (see abstract, the image are resample in a polar geometry to detect edge (contour), also page 730, column 1, thresholding is performed on the "contour image" in order to eliminate the lowest and only large connected components are retained)

(b) establishing at least one perfusion parameter of a region of interest of said organ within a boundary defined by the at least one contour (page 729 the precise location of the heart wall, also page 735, column 2, section V. to construct "better" images, feature points are extracted in stress and rest images, the stress and rest points are extracted in stress and rest images, the stress and rest points are matched together using an affined transformation "this give the stress-rest registration");

characterized in that steps (a) and (b) are repeated in a series of iterative steps wherein for each subsequent iterative step the definition of the at least one contour in step (a) is varied, and the series of iterative steps is terminated after reaching an opts value for the at least one perfusion parameter in step (b), (page 730, column 1, threshold is performed on the contour image in order to eliminate the lowest and only large connected components are retained, also column 2, the parameters described in

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the pervious paragraph are adapted in an ad-hoc manner to obtain an almost perfect set of point, with no gaps between edge points and no spurious edges. Those edges define the shape we use for registration, also section B, the Matching Criterion: a matching function, given a 3-D point M in Image 1 should be the equivalent 3-D point in image 2, and page 731, column 1, each **"iteration splits into three steps"**. Notice that if a point is not matched in this iteration, it may be matched in one that follows, and page 731 column 2, this new transformation is calculated within a class of acceptable function. The iterative process stops when a maximum number of iterations is reached).

Regarding claim 2 Declerck discloses method according to claim 1, characterized in that the organ is a heart and the region of interest is the heart's myocardium or a segment thereof (see abstract refer to myocardium).

Regarding claim 3, Declerck discloses method according to claim 2, characterized in that in step (a) the inner contour and/or the outer contour of the heart's myocardium is defined (Fig. 14 and 15, page 734, from top to bottom and left to right anterior wall and inferior wall, also page 736).

Regarding claim 4, Declerck discloses method according to any one of claims 1-3, characterized in that in step (b) the perfusion rate or upslope and/or the time at which the maximum perfusion rate occurs is established (page 733, column 2, paragraph 1-2, quantification of scintigraphic myocardial perfusion image are based on some form of polar transformation, the maximal intensity along the radii are reported on the 2-D polar image, just as if the 3-D polar image used for the segmentations was projected on the

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X, Y with maximal intensity projection, also, page 730, column 1, section C, thresholding is performed on the contour image).

Regarding claims 10, 11 and 12, arguments analogous to those presented for claims 1 2, 3 and 4 are applicable.

### **Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-8 and 14-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerome Declerck et al (Automatic Registration and Alignment on a Template Of Cardiac Stress and Rest Reoriented SPECT Images) in view of Aiazian (U.S. 7,024,024).

Regarding claim 6, Declerck discloses all limitations of claim 1, but does not explicitly state, "software program for a computer of an apparatus implemented to execute a method for analyzing perfusion images".

On the other hand Aiazian in the same filed of system for imaging and analyzing perfusion (see abstract, analyzing perfusion in selected body regions includes an imaging device configured to transmit electronic signal to computer-executable

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software, the software being programmed to translate the electrical signals into electronic data).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Declerck automatic registration of cardiac images invention according to the teaching of Aiazian because it provides a system for obtaining and analyzing perfusion images, having computer-executable software to transpose and calculate data into multi-dimensional displays, which are visually perceivable.

Regarding claims 7, 8 and 14-15, arguments analogous to those presented for claims 2, 3, 4 and 6 are applicable.

#### Allowable Subject Matter

8. Claims 5, 9 and 13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### Other prior art cited

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (6,292,683) to Gupta et al is cited for method and system for tracking motion in MR images.

U.S. patent (5,970,182) to Goris is cited for registration for myocardial images.

U.S. patent (5,647,360) to Bani-Hashemi et al is cited for digital subtraction angiography for 3D diagnostic imaging.



U.S. patent (6,222,948) to Hossack et al is cited for multiple ultrasound image registration system, method and transducer.

U.S. patent (6,447,450) to Olstad is cited for ECG gated ultrasonic image compounding.

U.S. patent (5,850,486) to Maas, III et al is cited for registration of image data.

### ***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian  
Patent Examiner  
Group Art Unit 2624  
March 25, 2007

